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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,417	11/21/2000	Gary Frazier	004578.1106	8188

7590

04/08/2004

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EXAMINER

NGUYEN, DUC M

ART UNIT	PAPER NUMBER
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2685

6

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/716,417

Applicant(s)

FRAZIER, GARY

Examiner

Duc M. Nguyen

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☒ Claim(s) 12-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to applicant's response filed on 3/24/04. Claims 1-24 are now pending in the present application.

Election/Restrictions

1. Applicant's election without traverse of group III (claims 12-24) in Paper No. 5 is acknowledged. Accordingly, Claims 1-11 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention. An action for Group III (claims 12-24) follows.

Specification

2. The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

3. The claims are objected to because the lines are crowded too closely together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

Claim Objections

Claim 12 is objected to because of the following informalities:

- in line 5 of claim 12, "it" should be changed to "said oscillator" for clarification purpose. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **19-20, 24** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Reindel** (US Pat No. **4,044,303**) in view of **Aull** et al (US **4,985,621**).

Regarding claim **19**, **Reindel** discloses a method for detecting signal strength of an input signal, comprising an oscillator using a tunnel diode for periodically shutting down and restarting the oscillator such that the duty cycle of the oscillator varies with the signal strength of the input signal. (see Fig. 1 and col. 2, line 49 - col. 3, line 26), wherein it is clear that resonant frequency of the RLC circuit is correspondent to the center frequency of the input RF signal. Here, although **Reindel** fails to clearly disclose the tunnel diode is the resonant tunneling diode as claimed, **Reindel** discloses that a tunnel diode or other negative resistance devices could be used (see Abstract). Since it is known in the art that the resonant tunneling diode is a negative resistance device as disclosed by **Aull** (see col. 4, lines 23-27), it would have been obvious that such tunnel diode as disclosed in **Reindel** would be the resonant tunneling diode, or that it can be replaced with the resonant tunneling diode as well, for being able to detect signals with frequencies in the microwave range.

Regarding claim **20**, the claim is rejected for the same reason as set forth in claim 19 above. In addition, **Reindel** discloses a signal source for the oscillator as claimed (see Fig. 1 and col. 3, lines 20-25).

Regarding claim **24**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, **Reindel** discloses the signal source arrived from an antenna as claimed (see Fig. 1).

6. Claims **21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Reindel** in view of **Aull** and further in view of **McEWan** (US 5,630,216).

Regarding claim **21**, the claim is rejected for the same reason as set forth in claim 19 above. In addition, since the capacitor 24, the resistor R1 and the inductor 26 is used to oscillate the circuit 14 (see col. 2, lines 52-66) which is similar to a quench circuit, it would have been obvious to one skill in the art to modify **Reindel** and **Aull** for replacing the circuit 16 with a quench generator as discussed by **McEvan** (see col. 1, lines 35-61), so that the circuit 14 can oscillate near the frequency of very high frequency RF signals.

Regarding claims **22-23**, the claims are rejected for the same reason as set forth in claim 19 above. In addition, since McEwan discloses that the quenching frequency is lower than the radio frequency (see col. 1, lines 35-41), it would have been obvious to use a quench generator that operates at a frequency lower or less than 10 percent the oscillator frequency as claimed for cost saving (the higher operating frequency of the generator, the more expensive).

Allowable Subject Matter

7. Claims 12-18 would be allowable if rewritten or amended to overcome the objection set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: As to claim 12, the cited prior art fails to disclose or make it obvious an apparatus or method for a microwave detector which comprises components as specified in the claim, wherein a pair of resonant tunneling diode of the oscillator is arranged in push-pull configuration and coupled to a quench circuit for detecting signal strength of an input signal after the oscillator has been biased out of an oscillation.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Morey (US Pat No. 5,946,609), Reduced-radiation radio signal receivers.
- Davis (US 4,143,324), Transistorized super-regenerative radio frequency detector.
- Ash (US 4,749,964), Super-regenerative detector having a saw device in the feedback circuit.
- Golub et al (US 5,539,761), Resonant tunneling oscillator.
- Silver et al (US 5,311,020), Monolithically-intergrated semiconductor/superconductor infrared detector and readout circuit.

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- Beaty (US 3,621,465), Super-regenerative amplifier oscillator with tunnel diode.
- Ono (US 6,175,325), Multi-band microwave detector.
- Schleifer (US 6,118,828), Digital super-regenerative detector RF receiver.

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (703) 306-4531, Monday-Thursday (9:00 AM - 5:00 PM). Or to Edward Urban (Supervisor) whose telephone number is (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Duc M. Nguyen



Apr 2, 2004